

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#3

In re Application

Inventor(s): Christophe Pierrat

Appl. No.: 10/068,513

Confirm. No.: 3666

Filed: 06 February 2002

Title: **Phase Shift Masking for Complex Patterns With  
Proximity Adjustments**

Art Unit: 1756

Examiner: *Unassigned*

**Customer No. 30437**

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.56**

Commissioner of Patents  
Washington, DC 20231

Sir:

It is requested that the information identified in this statement be considered by the Examiner and made of record in the above-identified application. This statement is not intended to represent that a search has been made or that the information cited in the statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56. If this is a continuation, divisional or continuation-in-part application, it is understood that the Examiner will consider all information which was considered by the Office in a parent application. MPEP §609. Such information therefore is not listed herein unless it is desired that the information be printed on a patent issuing from the subject application.

***Enclosed with this statement are the following:***

- Form PTO-1449. The Examiner is requested to initial the form and return it to the undersigned in accordance with M.P.E.P. §609.
- A copy of each cited document as required by 37 C.F.R. §1.98. Copies are not submitted of documents previously submitted by the applicant in a parent application from which benefit under 35 U.S.C. §120 is claimed, 37 C.F.R. §1.98(d)(1), with an information disclosure statement submitted in the parent application which complies with the Sept. 8, 2000 or subsequent revision of 37 C.F.R. §1.98(a-c). If any of the cited/submitted documents is in a foreign language, a concise explanation of relevance is provided pursuant to 37 C.F.R. §1.98(a)(3)(i). For foreign language documents cited in a search report by a foreign patent office, the requirement for a concise explanation of relevance is satisfied by the submission herewith of an English language version of the search report. MPEP §609A(3). If a written English-language translation of a non-English language document, or portion thereof, is within the possession, custody or control of, or is readily available to any individual designated in §1.56(c), a copy of the translation accompanies this statement, 37 C.F.R. §1.98(a)(3)(ii), and satisfies the requirement for a concise explanation of relevance, MPEP §609A(3).

— **PTA Statement under 37 C.F.R. §704(d).** Each item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in §1.56(c) more than thirty days prior to the filing of the information disclosure statement.

**This statement should be considered because:**

**37 C.F.R. §1.97(b).** This statement qualifies under 37 C.F.R. §1.97, subsection (b) because:

- (1) It is being filed within three months of the filing date of an application other than a continued prosecution application under § 1.53(d);  
-- OR --
- (2) It is being filed within 3 months of entry of a national stage;  
-- OR --
- (3) It is being filed before the mailing date of the first Office Action on the merits,  
-- OR --
- (4) It is being filed before the mailing date of the first Office Action after the filing of a Request for Continued Examination under 37 C.F.R. §1.114.

— **37 C.F.R. §1.97(c).** Although it may not qualify under subsection (b), this statement qualifies under 37 C.F.R. §1.97, subsection (c) because:

- (1) It is being filed before the mailing date of a FINAL office action, a Notice of Allowance, or an action that otherwise closes prosecution in the subject application, whichever occurs first.

— -- AND (*check at least one of the following*) --

- (1) It is accompanied by a STATEMENT as set forth in 37 C.F.R. §1.97(e).  
-- OR --
- (2) It is accompanied by the \$180 fee set forth in 37 C.F.R. §1.17(p).

— **37 C.F.R. §1.97(d).** Although it may not qualify under subsection (b) or (c), this statement qualifies under 37 C.F.R. §1.97, subsection (d) because:

- (1) It is being filed on or before payment of the issue fee;  
-- AND --
- (2) It is accompanied by a STATEMENT as set forth in 37 C.F.R. §1.97(e);  
-- AND --
- (3) It is accompanied by the \$180 fee set forth in 37 C.F.R. §1.17(p).

Application No. 10/068,513

**Fee Authorization.** The Commissioner is hereby authorized to charge underpayment of any additional fees or credit any overpayment associated with this communication to Deposit Account No. 50-0869. A duplicate copy of this authorization is enclosed.

Respectfully submitted,

HAYNES BEFFEL & WOLFELD LLP

Date: 23 September 2002

By: Mark A. Haynes  
Mark A. Haynes, Reg. No. 30,846

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PATENT & TRADEMARK OFFICE

<b>INFORMATION DISCLOSURE CITATION</b>  <b>PTO-1449</b>		<b>Atty. Docket No.</b> NMTI 1002-9	<b>Serial No.</b> 10/068,513-3666
		<b>Applicant</b> PIERRAT, Christophe	
		<b>Filing Date</b> 2/6/2002	<b>Group</b> 1756

**U.S. PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	5,302,477	4/12/1994	Dao, et al.	430	5	8/21/1992
	5,308,741	5/3/1994	Kemp	430	312	7/31/1992
	5,324,600	6/28/1994	Jinbo, et al.	430	5	7/7/1992
	5,364,716	11/15/1994	Nakagawa, et al.	430	5	9/3/1992
	5,472,814	12/5/1995	Lin	430	5	11/17/1994
	5,523,186	6/4/1996	Lin, et al.	430	5	12/16/1994
	5,527,645	6/18/1996	Pati, et al.	430	5	11/17/1994
	5,537,648	7/16/1996	Liebmann, et al.	395	500	8/15/1994
	5,538,815	7/23/1996	Oi, et al.	430	5	9/14/1993
	5,565,286	10/15/1996	Lin	430	5	11/17/1994
	5,573,890	11/12/1996	Spence	430	311	7/18/1994
	5,595,843	1/21/1997	Dao	430	5	3/30/1995
	5,620,816	4/15/1997	Dao	430	5	10/13/1995
	5,635,316	6/3/1997	Dao	430	5	10/13/1995
	5,636,131	6/3/1997	Liebmann, et al.	364	490	5/12/1995
	5,702,848	12/30/1997	Spence	430	5	8/23/1996
	5,761,075	6/2/1998	Oi, et al.	364	488	5/31/1996
	5,766,804	6/16/1998	Spence	430	5	8/23/1996
	5,766,806	6/16/1998	Spence	430	5	9/9/1996
	5,807,649	9/15/1998	Liebmann, et al.	430	5	10/31/1996
	5,858,580	1/12/1999	Wang, et al.	430	5	9/17/1997
	5,923,562	7/13/1999	Liebmann, et al.	364	488	10/18/1996
	5,923,566	6/13/1999	Galan, et al.	364	489	3/25/1997

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	5,994,002	11/30/1999	Matsuoka	430	5	9/4/1997
	5,998,068	12/7/1999	Matsuoka	430	5	1/27/1998
	6,057,063	5/2/2000	Liebmann, et al.	430	5	4/14/1997
	6,066,180	5/23/2000	Kim, et al.	716	19	3/15/1999
	6,083,275	7/4/2000	Heng, et al.	716	19	1/9/1998
	6,130,012	10/10/2000	May, et al.	430	5	1/13/1999
	6,139,994	10/31/2000	Broeke, et al.	430	5	6/25/1999
	6,185,727 B1	2/6/2001	Liebmann	716	19	12/12/1995
	6,228,539 B1	5/8/2001	Wang, et al.	430	5	1/12/1999
	6,251,549 B1	6/26/2001	Levenson	430	11	10/28/1999
	6,258,493 B1	7/10/2001	Wang, et al.	430	5	7/17/2000
	6,335,128 B1	1/1/2002	Cobb, et al.	430	5	9/28/1999
	6,338,922 B1	1/15/2002	Liebmann, et al.	430	5	5/8/2000
	2001/0000240 A1	4/12/2001	Wang, et al.	430	5	12/7/2000
	2001/0028985 A1	10/11/2001	Wang, et al.	430	5	4/20/2001

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EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
	JP 6-67403	3/11/1994	JP			<input checked="" type="checkbox"/>	<input type="checkbox"/>
	WO 01/23961 A1	4/5/2001	WO			<input type="checkbox"/>	<input type="checkbox"/>
	JP 1,283,925	2/14/1991	JP			<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	GB 2,333,613 A	7/28/1999	GB			<input type="checkbox"/>	<input type="checkbox"/>
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	JP 2,650,962	5/16/1997	JP			<input type="checkbox"/>	<input type="checkbox"/>
✓	EP 0 653 679 A2	5/17/1995	EP			<input type="checkbox"/>	<input type="checkbox"/>
	JP 8,051,068	2/20/1996	JP			<input checked="" type="checkbox"/>	<input type="checkbox"/>
	JP 8-236317	9/6/1996	JP			<input checked="" type="checkbox"/>	<input type="checkbox"/>
	JP 10-133356	5/22/1998	JP			<input type="checkbox"/>	<input type="checkbox"/>
	JP 11-143085	5/28/1999	JP			<input type="checkbox"/>	<input type="checkbox"/>
	JP 62067547	3/27/1987	JP			<input type="checkbox"/>	<input type="checkbox"/>
	WO 98/12605 A1	3/26/1998	WO			<input type="checkbox"/>	<input type="checkbox"/>
	DE 195 45 163 A1	6/5/1996	DE			<input type="checkbox"/>	<input type="checkbox"/>

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EXAMINER'S INITIALS	CITATION
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	Wang, R., et al., "Polarized Phase Shift Mask: Concept, Design, and Potential Advantages to Photolithography Process and Physical Design", Motorola Semiconductor Product Sector (12 pages). <i>Polarized</i>
	Ogawa, K., et al., "Phase Defect Inspection by Differential Interference", Lasertec Corporation (12 pages).
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	Suzuki, A., et al., "Multilevel Imaging System Realizing k1=-.3 Lithogrpahy", Canon Inc. (13 pages).
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	Fritze, M., et al., "100-nm Node Lithography with KrF?", MIT Lincoln Lab, Numerical Technologies, Photronics, Arch Chemicals (14 pages).
	Fukuda, H., et al., "Patterning of Random Interconnect Using Double Exposure of Strong-Type PSMs", Hitachi Central Research Lab (8 pages).
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<b>INFORMATION DISCLOSURE CITATION</b>  <b>PTO-1449</b>		<b>Atty. Docket No.</b> NMTI 1002-9	<b>Serial No.</b> 10/068,513-3666
		<b>Applicant</b> PIERRAT, Christophe	
		<b>Filing Date</b> 2/6/2002	<b>Group</b> 1756

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